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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/650,964	08/29/2000	Andrew Bishop	Q00-1041-US1	8999

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EXAMINER

AHN, SAM K

ART UNIT	PAPER NUMBER
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2634

DATE MAILED: 03/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/650,964

Applicant(s)

BISHOP ET AL.

Examiner

Sam K. Ahn

Art Unit

2634

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 August 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 August 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Oath/Declaration

1. The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

The oath or declaration is defective because:

- a. The citizenship of the second inventor, Ivan Chan, is not consistently identified, wherein the sheet with Mr.Chan's signature has Mr.Chan's citizenship as Canada, while on the sheet with Mr.Bishop's signature has Mr. Chan's citizenship as USA.
- b. The signature of the third inventor, Mr.Russell Brown is missing.

Drawings

2. The drawings are objected to because in Fig.7, the lines of "565 and 566" do not seem to correspond with the specification and claimed subject matter during the last pattern change. It appears that the lines 455, 525, 575, 565 and 566 do correspond until the last pattern change, falling edge of training pattern 525, or the last pulse of 575. At this instant, 565 is set to high, rather than 566 being set to high. Please confirm if this is correct.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Objections

3. Claims 1-11 are objected to because of the following informalities:

In claim 1, lines 5, 7, delete "the amplified signal", and insert "the amplified said input signal".

In claim 1, lines 7, delete "the threshold signal", and insert "the predetermined threshold signal".

In claim 1, lines 5 and 7, and claim 6, lines 2 and 3, delete "the digital signal", and insert "the digital comparison signal".

In claim 5, line 2, delete "--- converted ---".

In claim 6, lines 9-11, delete "the first signal" and "the second signal", and insert "the first output signal" and "the second output signal", respectively.

In claim 7, lines 5 and 7, delete "the amplified signal" and insert "the amplified said input SCSI signal".

In claim 8, line 1, delete "--- wherein modifying ---" and insert "--- wherein said modifying ---".

In claim 8, lines 3-5, delete "the input signal", and insert "the input SCSI signal".

In claim 9, lines 7, delete "the threshold level", and insert "the predetermined threshold level".

In claim 10, line 1, delete "--- the threshold voltage level ---", and insert "--- a voltage level of the predetermined threshold level ---" for clarity.

In claim 10, line 2, delete "a digital" and insert "the digital".

Claims 2-4 and 11 directly depend on claim 1 or 7.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 1-6 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 1, lines 8 and 9, recites a filter adaptation circuit receiving the digital signal and the input signal. As the input signal amplified by the adaptive filter, the filter adaptation circuit does not appear to be receiving the same input signal but output of the comparator (220 in Fig.2). Claim 6, lines 2-7, further appears to be reciting wherein the filter adaptation circuit receives the input signal, wherein claims 2-5 directly depend on claim 1.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claim 8 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 8 in lines 1, 2 and 4, recites "the amplitude control signal". There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-3, 7, 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bazes et al. (Bazes) in view of Gasparik.

Regarding claims 1-3 and 7, Bazes teaches a method of canceling inter-symbol interference and a circuit for adaptively amplifying an input signal (see Fig.4), wherein the circuit comprises an adaptive filter (402) connected to receive the input signal, $i(t)$, and to amplify (see 605, 606 in Fig.6) a predetermined frequency range (note col.4, lines 52-56) of the input signal by an amount based on an amplification control signal (zero selection signal) input to the adaptive filter. (note col.4, line 53 – col.6, line 50) Bazes also teaches a comparator (404, see further in Fig.9) connected to receive the amplified input signal from the

adaptive filter and a predetermined threshold signal, V_{th} , the comparator outputting a digital comparison signal, $d(t)$, indicating whether the amplified input signal is greater than the threshold signal, where elements 801 and 802 compare the amplified input signal is greater than V_{th} . (note col.6, line 53 – col.7, line 38) Further, Bazes teaches a filter adaptation circuit (406) connected to receive the digital comparison signal to modify the amplification control signal (zero selection signal) based on the digital comparison signal. (note col.7, line 40 – col.8, line 53) Bazes further teaches that the adaptive equalization may be implemented by automatically varying its characteristics in a different transmission medium. (note col.1, line 66 – col.2, line 4) However, Bazes does not teach wherein the input signal is a SCSI signal.

Gasparik teaches equalization of input signal, equalizing high frequency signals. (see Fig.2) Gasparik further teaches equalizing SCSI signals, (note col.3, line 50 – col.4, line 10), as well as input signals traveled through LAN connections, as also taught by Bazes. Therefore, it would have been obvious to one skilled in the art at the time of the invention to implement Bazes' teaching in an environment receiving SCSI signals where the advantages of Bazes' system properly implements adaptive equalization of input signals.

Regarding claims 9 and 10, Bazes in view of Gasparik teach all subject matter claimed, as applied to claim 7. Bazes further teaches wherein the predetermined threshold level, V_{th} , is a voltage offset from the voltage level used to convert the

input signal to a digital value, and further wherein the voltage level of the predetermined threshold level is below the voltage level used to convert the input SCSI signal to the digital value. (note col.7, lines 15-29)

7. Claim 4 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bazes et al. (Bazes) in view of Gasparik in further view of Stroet et al. (Stroet).

Regarding claims 4 and 11, Bazes in view of Gasparik teach all subject matter claimed, as applied to claim 1 or 7. However, Bazes in view of Gasparik do not teach wherein the adaptive filter is a third order Bessel filter. Stroet teaches this limitation. Stroet teaches implementation of the third order Bessel filter where the linearity requirement is needed. Stroet also teaches the filter adaptively adjusting input signal. (note col.9, line 46 – col.10, line 8) Therefore, it would have been obvious to one skilled in the art at the time of the invention to modify Bazes' teaching of the filter having a first order filtering (comprising resistors and capacitors, note col.5, lines 37-40) with a third order Bessel filter for the purpose of effectively meeting a linearity requirement when necessary during filtering stage, as taught by Stroet. (note col.9, line 46 – col.10, line 8)

8. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bazes et al. (Bazes) in view of Gasparik in further view of Gaudet.

Regarding claim 5, Bazes in view of Gasparik teach all subject matter claimed, as applied to claim 1. However, Bazes in view of Gasparik do not teach a DAC converting the feedback signal from the filter adaptation to feed the signal to the adaptive filter. Gaudet teaches (see Fig.4) an analog adaptive filter (67), further including DAC (81, digital to analog converter) converting the output signal from the filter adaptation (19) to feed the adaptive filter. (note col.12, line 43 – col.13, line 4) Therefore, it would have been obvious to one skilled in the art at the time of the invention to replace Bazes' digital adaptive filter with Gaudet's analog adaptive filter which would result in having a DAC for feeding the signal to the filter in an analog format. It would have been a matter of design choice to either provide a digital adaptive filter or an analog adaptive filter, as these filters provide almost identical results, and one may be opted to design using a filter which are readily available in the market.

Allowable Subject Matter

9. Claim 8 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, and claim objections, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: Present application discloses inter symbol interference reduction of received SCSI signals, particularly of in high frequency range. The disclosure mainly

comprises configuration of an adaptive filter, comparator and a filter adaptation. Closest prior arts, Bazes and Gasparik teach all subject matter claimed. However, prior art do not teach or suggest the combination of wherein the amplification control signal used to control the adaptive filter is increased or decreased on the falling edge of a digitized version of the input SCSI signal.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Tsujimoto teaches adaptive filter with decision feedback equalizer.

Kimura et al. teach programmable filter and equalization in a data processing device.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Sam Ahn** whose telephone number is **(703) 305-0754**.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Stephen Chin**, can be reached at **(703) 305-4714**.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
P.O. Box 1450
Alexandria, VA 22313-1450

or faxed to:

Application/Control Number: 09/650,964
Art Unit: 2634

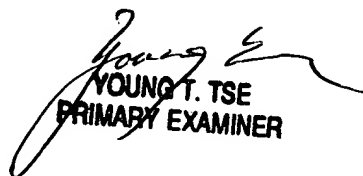
Page 10

(703) 872-9306

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington. VA., Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

Sam K. Ahn
2/22/04


YOUNG T. TSE
PRIMARY EXAMINER